Natural Resources Canada
Ressources naturelles Canada

Minerals and Metals Sector
Secteur des minéraux et des métaux

2000 directory of specialists and services

sustainable development

materials technology

mining and mineral sciences

mineral policy

mineral commodities

mining statistics

exploration/reserves

mining taxation

explosives/ pyrotechnics

Minerals and Metals Sector

http://www.nrcan.gc.ca/mms/

© Minister of Public Works and
Government Services Canada 2000

Additional copies of this publication are available in limited quantities at no charge from:

Minerals and Metals Sector
Natural Resources Canada
Ottawa, Ontario K1A 0E4

Telephone: (613) 947-6580
Facsimile: (613) 947-1018
E-mail: gkingsle@nrcan.gc.ca

La version française intitulée
Répertoire des spécialistes et des services
est aussi disponible.

This publication is printed on recycled paper.

PRINTED IN CANADA

FOREWORD

Minerals and Metals Sector employees are an important resource for information and advice. In most cases, Minerals and Metals Sector specialists, scientists, engineers and technicians will have the information you need or the ability to find it. If there is a subject of particular interest to you, do not hesitate to contact any of the people listed in this publication, or visit our web site at **http://www.nrcan.gc.ca/mms/ms-e.htm** where you can search our on-line Directory of Specialists by subject or person.

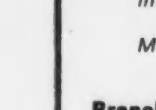
An outline of the work of the Minerals and Metals Sector, an overview of the Sector's organization, and a comprehensive listing of specialists are also included in this edition. The list of specialists is organized by four major areas of activity: Commodities, General Mineral Issues, International Responsibilities, and Mineral Technology and Explosives.

This Directory also features a list of publications published by the Minerals and Metals Sector and provides instructions on how to obtain copies or where to access them on the Internet.

If you have any questions or comments on this Directory or any other Minerals and Metals Sector publication, I invite you to contact:

Publishing and Communication Services Division
Minerals and Metals Sector
Natural Resources Canada
580 Booth Street
Ottawa, Ontario, Canada
K1A 0E4

Telephone: (613) 947-6580
Facsimile: (613) 947-4198
E-mail: jebureau@nrcan.gc.ca



Linda J. Keen
Assistant Deputy Minister
Minerals and Metals Sector

TABLE OF CONTENTS

Page

Introduction 1

List of Specialists

Commodities 3

General Mineral Issues 5

International Responsibilities 8

Mineral Technology and Explosives 10

Branch Responsibilities 19

Organization Chart 24

Minerals and Metals Sector Publications

Canadian Mining Industry

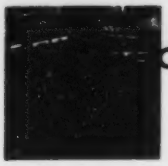
- Minerals and Metals Policy of the Government of Canada 29
- Mineral Reports and Bulletins 30
- Periodicals 32
- Special Reports 33
- General 41

Mineral Technology and Explosives

- MMSL Annual Report 42
- Newsletters 43
- Catalogues 45
- Technical Reports 45
- Explosives 49

Sources of Information on the Internet . .53

101-01023/



ODUCTION

The Minerals and Metals Sector (MMS) of Natural Resources Canada is one of five sectors in the Department. The others are the Earth Sciences Sector, the Energy Sector, the Canadian Forest Service, and the Corporate Services Sector.

MMS is the federal government's primary source of scientific and technological knowledge, and policy advice, on Canada's mineral and metal resources and on explosives regulation and technology. The Sector is comprised of four branches: Mineral and Metal Policy, Economic and Financial Analysis, Mineral Technology (CANMET), and Planning and Management Services. MMS devotes a large portion of its resources to science and technology, and houses three of Canada's premier scientific research institutions (the Mining and Mineral Sciences Laboratories, the Materials Technology Laboratory, and the Canadian Explosives Research Laboratory).

MMS has the government lead in promoting the sustainable development and responsible use of Canada's mineral and metal resources. The Sector is a leader in the generation and dissemination of knowledge on the Canadian minerals and metals industry. MMS interacts with a wide range of stakeholders, including the private sector, environmental groups, Aboriginal peoples, provincial and territorial governments, other federal departments and agencies, and international organizations. It also collaborates with and provides research services to governmental, institutional and industrial clients (from mining to manufacturing) for the development of new technology with economic, environmental and social benefits to Canadians.

An organization chart of the Sector and brief descriptions of the responsibilities of each branch can be found beginning at page 19.

We also invite you to visit us on the Internet at **http://www.nrcan.gc.ca/mms/ms-e.htm**.

OF SPECIALISTS

SUBJECT	CONTACT	TELEPHONE
Commodities		*(area code 613 unless noted otherwise)*
Aggregates	Vagt, Oliver	992-2667
Aluminum	Wagner, Wayne	996-5951
Anhydrite	Vagt, Oliver	992-2667
Antimony	McCutcheon, Bill	992-5480
Asbestos	Perron, Louis	992-4828
Bentonite	Vagt, Oliver	992-2667
Beryllium	Wagner, Wayne	996-5951
Bismuth	McCutcheon, Bill	992-5480
Cadmium	Hodgson, Blair	996-0915
Calcite	Dumont, Michel	995-2917
Calcium carbonate	Dumont, Michel	995-2917
Calcium chloride	Morel-à-l'Huissier, Patrick	992-3258
Calcium metal	McCutcheon, Bill	992-5480
Celestite	Dumont, Michel	995-2917
Cement	Vagt, Oliver	992-2667
Cesium	McCutcheon, Bill	992-5480
Chromium, ferro-chrome	Miron, Michel	995-0530
Chrysotile	Perron, Louis	992-4828
Clays	Vagt, Oliver	992-2667
Coal	Mourits, Frank	996-7857
Cobalt	McCutcheon, Bill	992-5480
Copper	Coulas, Maureen	992-4093
Diamonds	Boyd, Bruce	992-8179
Dolostone	Vagt, Oliver	992-2667
Ferroalloys	Miron, Michel	995-0530
Fluorspar	Wagner, Wayne	996-5951
Fly ash	Vagt, Oliver	992-2667
Gemstones	Boyd, Bruce	992-8179
Gold	Keating, John	992-4409
Granite	Vagt, Oliver	992-2667
Graphite	Dumont, Michel	995-2917
Gypsum	Vagt, Oliver	992-2667
Indium	McCutcheon, Bill	992-5480
Iron ore	Miron, Michel	995-0530
Iron, primary	Miron, Michel	995-0530

SUBJECT	CONTACT	TELEPHONE
Commodities (cont'd)		
Kaolin	Dumont, Michel	995-2917
Lead	Hodgson, Blair	996-0915
Lime	Vagt, Oliver	992-2667
Limestone	Vagt, Oliver	992-2667
Lithium	Wagner, Wayne	996-5951
Magnesium	Wagner, Wayne	996-5951
Manganese	Miron, Michel	995-0530
Marble	Vagt, Oliver	992-2667
Mercury	Chevalier, Patrick	992-4401
Mica	Dumont, Michel	995-2917
Molybdenum	Coulas, Maureen	992-4093
Nickel	McCutcheon, Bill	992-5480
Niobium, ferroniobium	Miron, Michel	995-0530
Perlite	Vagt, Oliver	992-2667
Phosphate rock	Prud'homme, Michel	992-3733
Platinum group metals	Keating, John	992-4409
Potash, potassium	Prud'homme, Michel	992-3733
Precious metals	Keating, John	992-4409
Rare earths	Boyd, Bruce	992-8179
Recycled metals	Clapham, Mike	992-4404
Rhenium	McCutcheon, Bill	992-5480
Salt	Morel-à-l'Huissier, Patrick	992-3258
Sand and gravel	Vagt, Oliver	992-2667
Sandstone	Vagt, Oliver	992-2667
Selenium	Coulas, Maureen	992-4093
Silica	Dumont, Michel	995-2917
Silicon	Miron, Michel	995-0530
Silver	Keating, John	992-4409
Slate, shale	Vagt, Oliver	992-2667
Sodium carbonate	Morel-à-l'Huissier, Patrick	992-3258
Sodium chloride	Morel-à-l'Huissier, Patrick	992-3258
Sodium sulphate	Morel-à-l'Huissier, Patrick	992-3258
Spodumene	Dumont, Michel	995-2917
Steel	Mourits, Frank	996-7857
Stone	Vagt, Oliver	992-2667
Strontium metal	McCutcheon, Bill	992-5480
Sulphur	Morel-à-l'Huissier, Patrick	992-3258
Sulphuric acid	Morel-à-l'Huissier, Patrick	992-3258
Talc	Dumont, Michel	995-2917
Tantalum, ferro-tantalum	Miron, Michel	995-0530
Tellurium	Coulas, Maureen	992-4093
Titanium dioxide	Dumont, Michel	995-2917
Titanium metal	Miron, Michel	995-0530
Tungsten	Miron, Michel	995-0530
Vanadium, ferro-vanadium	Miron, Michel	995-0530
Vermiculite	Vagt, Oliver	992-2667
Wollastonite	Dumont, Michel	995-2917
Zeolites	Vagt, Oliver	992-2667
Zinc	Chevalier, Patrick	992-4401

General Mineral Issues

Aboriginal issues	Thompson, Julie	995-5115
Acidifying emissions	Lomas, Robert	992-8468
Acquisitions and mergers	Jen, Lo-Sun	992-0658
Atmospheric emissions	Lomas, Robert	992-8468
Canadian activity abroad	Lemieux, André	992-2709
Canadian exploration projects abroad	Lemieux, André	992-2709
Cape Breton Development Corporation, policy analysis	Lomas, Robert	992-8468
Capital and investment expenditure flows	Jen, Lo-Sun	992-0658
Climate change, coal, minerals and metals	Mourits, Frank	996-7857
Communications	Crossfield, Sandra	992-6211
Company information	Lemieux, André	992-2709
Competitiveness, cost analysis	Penton, Frank	995-9207
Competitiveness, investment	Hull, Dale	995-5301
Corporate financial analysis	Trelawny, Peter	995-3422
Dominion Coal Blocks	Mourits, Frank	996-7857
Economic analysis	Penton, Frank	995-9207
Economic assessment, CEAA	Penton, Frank	995-9207
Economic indicators	Birchfield, Greig	992-1470
Economic instruments for environmental monitoring	McDonnell, Ed	992-8205

SUBJECT	CONTACT	TELEPHONE
General Mineral Issues (cont'd)		
Economic policies	Hull, Dale	995-5301
Enquiries, general	Laflèche, Louise	947-6580
Environment, international issues	Smith, Brian	992-3784
Environmental assessment legislation	Jetté, Hélène	995-6971
Environmental policy	Lagacé, Denis	995-7029
Environmental regulatory issues	Pasho, David	992-7958
Exploration analysis	Cranstone, Donald	992-4666
Exploration incentive programs	Clark, Robert	996-3286
Exposition services	Bureau, Jean	996-1611
Federal-provincial/territorial relations	Carpentier, Monique	996-0266
Financial analysis	Lefèbvre, Jean	995-9073
Fish habitat regulation	Lapalme, Lise-Aurore	995-9065
Foreign investment	Jen, Lo-Sun	992-0658
Foreign ownership	Trelawny, Peter	995-3422
Globalization	Lemieux, André	992-2709
Goods and services	Lemieux, André	992-2709
IGWG Secretariat	Irvine, Robert	995-1297
Information for exporters	Létang, Jean-Yves	992-3084
Internet site coordination	Desnoyers, Diane	947-3146
Investment climate issues	Hull, Dale	995-5301
Investment opportunities in Canada	Jen, Lo-Sun	992-0658
Investment promotion	Lauer, James	992-5873
Land use decision-making processes	Lapalme, Lise-Aurore	995-9065
Life-cycle analysis, minerals and metals	McCutcheon, Bill	992-5480
Marine transportation	McDonnell, Ed	992-8205
Market access	Hodgson, Blair	996-0915
Market trends and analyses	Lauer, James	992-5873
Metals in the environment	Ignatow, Alek	992-3834
Metals toxicity	Ignatow, Alek	992-3834
Mine development, openings and closures	Jen, Lo-Sun	992-0658
Mine ore reserves	Reed, Alan	995-9071
Mine ownership	Jen, Lo-Sun	992-0658
Mine production analysis	Jen, Lo-Sun	992-0658
Mineral development project tracking and monitoring	Clausen, Scott	995-5067
Mineral legislation	Pasho, David	992-7958
Mineral policy, general	Irvine, Robert	995-1297
Mineral resource certification	Clark, Robert	996-3286
Mineral statistics and systems	Gauthier, Yvan	996-5786
Mineral statistics, analysis	Greenwell, Brock	947-2406
Mineral statistics, consumption	Ralph, Lorraine	992-8017
Mineral statistics, development project	Pépin, Suzanne	996-1788
Mineral statistics, dissemination	Morrison, Laurie	992-6767

SUBJECT	CONTACT	TELEPHONE
General Mineral Issues (cont'd)		
Mineral statistics, economic/mining	Morrison, Laurie	992-6767
Mineral statistics, employment	Scollan, Marian	992-7967
Mineral statistics, exploration	Bouchard, Ginette	992-4665
Mineral statistics, federal-provincial	Dunn, Rob	996-6384
Mineral Statistics, Federal-Provincial Committee on	Dunn, Rob	996-6384
Mineral statistics, general requests	Morrison, Laurie	992-6767
Mineral statistics, internet	Kokkinos, Kosta	996-8209
Mineral statistics, production	Paquette, Jacqueline	992-9005
Mineral statistics, purchased services	Dunn, Rob	996-6384
Mineral statistics, statistical systems	Desforges, Gilles	992-4526
Mineral statistics, survey methodology	Dunn, Rob	996-6384
Mineral statistics, trade	Currie, Jane	992-5798
Minerals supply, future	Cranstone, Donald	992-4666
Mines Ministries of the Americas Conference (CAMMA)	Stirling, Kim	992-4403
Mining investment, China	Jen, Lo-Sun	992-0658
Mining Policy Research Initiative	Stirling, Kim	992-4403
Mining project monitoring, Atlantic and central Canada	Jetté, Hélène	995-6971
Mining project monitoring, N.W.T. and Yukon	Johnstone, Rob	992-7744
Mining project monitoring, western Canada	Lapalme, Lise-Aurore	995-9065
Mining tax, interpretation	Clark, Robert	996-3286
Mining tax, legislation	Lefèbvre, Jean	995-9073
Mining taxation, financial analysis and modelling	McCullough, Brian	995-9119
Mining taxation, flow-through shares and other exploration issues	Arseneau, Louis	995-0959
Mining taxation, IGWG Tax Sub-Committee	Bergevin, Gilles	995-3421
Mining taxation, inter-provincial competitiveness	McCullough, Brian	995-9119
Mining taxation, international competitiveness	Bergevin, Gilles	995-3421
Mining taxation, internet	Savard, Jacques	995-7396
Mining taxation, investment climate and tax reform issues	Bergevin, Gilles	995-3421
Mining taxation, non-profit taxes	Arseneau, Louis	995-0959
Mining taxation, reclamation	Arseneau, Louis	995-0959
National inventory, minerals	Gauthier, Yvan	996-5786
Native land claims	Thompson, Julie	995-5115
Offshore minerals management	Vance, Deidre	995-8839
Operations and closure regulations	Clausen, Scott	995-5067
Parliamentary affairs	Fernando, Dilhari	996-7372
Policy coordination	Bennett, Marc	995-6018

SUBJECT	CONTACT	TELEPHONE
General Mineral Issues (cont'd)		
Policy development	Fernando, Dilhari	996-7372
Priority substances list	Chevalier, Patrick	992-4401
Productivity analysis	Trelawny, Peter	995-3422
Project evaluation	Reed, Alan	995-9071
Protected areas	Lapalme, Lise-Aurore	995-9065
Publications, requests for	Rochon, Denise	943-0555
Publishing services	Bureau, Jean	996-1611
Rail transportation	McDonnell, Ed	992-8205
Recycling, metals and scrap	Clapham, Mike	992-4404
Regulatory reform	Jetté, Hélène	995-6971
Resource management	Pasho, David	992-7958
Rural issues, minerals and metals	Prud'homme, Michel	992-3733
Safe use principle, minerals and metals	Chevalier, Patrick	992-4401
Safe use, nonmetallic minerals	Perron, Louis	992-4828
Secondary metals and regulatory issues	Clapham, Mike	992-4404
Secondary metals, Basel Convention	Clapham, Mike	992-4404
Statistics, mining, mineral and metal	Gauthier, Yvan	996-5786
Sustainable development, indicators	Burgham, Mark	947-1592
Sustainable development, Like-Minded Initiative	Morel-à-l'Huissier, Patrick	992-3258
Sustainable development, mineral technology	Dubreuil, Alain	995-5844
Sustainable development, mining policy	Burgham, Mark	947-1592
Sustainable development, nonferrous metals	Keating, John	992-4409
Toxic Substances Management Policy	Chevalier, Patrick	992-4401
Trade and environment	Smith, Brian	992-3784
Transportation policy, rail and marine	Hull, Dale	995-5301
Value-Added Mineral and Metal Strategy	Jackman, Jennifer	996-8997
Value added, minerals and policy	Prud'homme, Michel	992-3733
Value added, mining	Trelawny, Peter	995-3422
Whitehorse Mining Initiative	Kingsbury, Susan	996-7372
International Responsibilities		
Africa	Miron, Michel	995-0530
Antarctica/Arctic	Hoskin, Wanda	995-9064
APEC	Walters, Martin	996-4110
Arctic Council	Hoskin, Wanda	995-9064
ASEAN	Walters, Martin	996-4110
Australia	Boyd, Bruce	992-8179
Basel Convention	Clapham, Mike	992-4404

SUBJECT	CONTACT	TELEPHONE
International Responsibilities (cont'd)		
C.I.S.	McCutcheon, Bill	992-5480
CAMMA (Mines Ministries of the Americas Conference)	Stirling, Kim	992-4403
Canada-China mining investment relations	Jen, Lo-Sun	992-0658
Canadian activity abroad	Lemieux, André	992-2709
Canadian exploration projects abroad	Lemieux, André	992-2709
Caribbean	Stirling, Kim	992-4403
Central America	Stirling, Kim	992-4403
China	Walters, Martin	996-4110
Coal, APEC, IEA, UN-ECE	Mourits, Frank	996-7857
Eastern Europe	McCutcheon, Bill	992-5480
Environment, international issues	Smith, Brian	992-3784
European Union	Hodgson, Blair	996-0915
Free trade agreements	Smith, Brian	992-3784
IFCS/IPCS	Collins, Vivian	995-9571
India	Walters, Martin	996-4110
International business development	Létang, Jean-Yves	992-3084
International Communiqué	Stirling, Kim	992-4403
International Consultative Group on Non-Ferrous Metal Statistics	Paquette, Jacqueline	992-9005
International Copper Study Group	Coulas, Maureen	992-4093
International Lead and Zinc Study Group	Chevalier, Patrick	992-4401
International Lead Management Centre	Keating, John	992-4409
International liaison, CANMET	Lorenzato, Diane	996-1288
International matters	Hoskin, Wanda	995-9064
International Mineral Commodity Study Groups Policy	Chevalier, Patrick	992-4401
International Nickel Study Group	McCutcheon, Bill	992-5480
Japan	Walters, Martin	996-4110
Korea	Walters, Martin	996-4110
Law of the sea	Smith, Brian	992-3784
LRTAP Heavy Metals Protocol, UN-ECE	Hodgson, Blair	996-0915
Market access	Hodgson, Blair	996-0915
Mexico	Stirling, Kim	992-4403
Middle East	Morel-à-l'Huissier, Patrick	992-3258
Mines Ministries of the Americas Conference (CAMMA)	Stirling, Kim	992-4403
Ministerial missions	Létang, Jean-Yves	992-3084
Multilateral trade negotiations	Smith, Brian	992-3784

SUBJECT	CONTACT	TELEPHONE
International Responsibilities (cont'd)		
North American Commission for Environmental Cooperation	Hoskin, Wanda	995-9064
North Asia	Walters, Martin	996-4110
OECD	Hoskin, Wanda	995-9064
OECD risk reduction	Keating, John	992-4409
Organization of American States (OAS)	Stirling, Kim	992-4403
Russia	McCutcheon, Bill	992-5480
Secondary metals, Basel Convention	Clapham, Mike	992-4404
South America	Stirling, Kim	992-4403
South and Southeast Asia	Walters, Martin	996-4110
Sulphur Market Study Group, The	Morel-à-l'Huissier, Patrick	992-3258
Team Canada Inc	Létang, Jean-Yves	992-3084
Trade and environment	Smith, Brian	992-3784
Trade policy	Smith, Brian	992-3784
U.N. Commission on Sustainable Development	Collins, Vivian	995-9571
UNCTAD	Collins, Vivian	995-9571
United Nations Environment Programme (UNEP)	Collins, Vivian	995-9571
United States	Stirling, Kim	992-4403
World Trade Organization	Smith, Brian	992-3784

Mineral Technology and Explosives

Abandoned mine hazards	Bétournay, Marc	995-1147
Abandoned mines database	Vance, Jim	996-8604
Acid mine drainage, control strategies	Davé, Nand	943-9283
Acid mine drainage, environmental protection	Hynes, Tom	943-0524
Acid mine drainage, MEND 2000 Program	Tremblay, Gilles	992-0968
Acid mine drainage, microbiology	Gould, Doug	992-1885
Acid mine drainage, treatment, sludges	Zinck, Janice	995-4221
Acid rock drainage, prediction	Weatherell, Carl	995-3097
Advanced fabrication technologies	Lo, Jason	992-2669
Advanced materials, general	Lo, Jason	992-2669
Aerospace materials	Lo, Jason	992-2669
Alkali aggregates	Fournier, Benoit	992-8394
Ammonia, destruction in effluents	Koren, David	992-7286
Auger spectroscopy	Brown, Jim	996-8673
Automotive materials	Lo, Jason	992-2669

SUBJECT	CONTACT	TELEPHONE
Mineral Technology and Explosives (cont'd)		
Backfill, mine	Annor, Alfred	(705) 670-6550
Backfill, paste fluidization technology	Chen, Long-Jin	(705) 670-6551
Battery materials	Wronski, Zbig	992-0160
Biocorrosion	MacLeod, Alex	992-1416
Biotechnology, general	Gould, Doug	992-1885
Biotechnology, networking	Koren, David	992-7286
Boilers	Al Taie, Ihsan	992-2288
Brazing	Martin, Pierre	992-8283
Businesss development, MMSL	Dauphin, Philippe	947-0798
Casting technology, aluminum	Fasoyinu, Festus	996-0325
Casting technology, brass	Sahoo, Mahi	992-5475
Casting technology, continuous	Es-Sadiqi, Elhachmi	992-2780
Casting technology, copper alloys	Sahoo, Mahi	992-5475
Casting technology, general	Sahoo, Mahi	992-5475
Casting technology, magnesium	Fasoyinu, Festus	996-0325
Casting technology, plumbing	Sahoo, Mahi	992-5475
Casting technology, zinc	Sahoo, Mahi	992-5475
Casting, investment	Newcombe, Peter	943-0208
Casting, lead alloys	Sahoo, Mahi	992-5475
Casting, permanent mold	Sadayappan, Kumar	992-0741
Castings, copper-based	Sadayappan, Kumar	992-0741
Castings, iron	Javaid, Amjad	947-0245
Castings, steel	Kuyucak, Selcuk	992-2253
Castings, wear-resistant	Kuyucak, Selcuk	992-2253
Cement, mineral technology	Zhang, Min-Hong	992-6455
Ceramics, R&D	Wheat, Tom	992-1395
Chemical analysis, methodology	Smith, Clint	992-3893
Chemical analysis, radio isotopes	Davé, Nand	943-9283
Coal mining, instrumentation	Bonnell, Gary	(705) 670-6766
Coal, coal/gas analysis	Bonnell, Gary	(705) 670-6766
Coating materials, general	Dionne, Sylvie	996-9701
Column flotation	Negeri, Tesfaye	992-5860
Concrete technology	Malhotra, Mohan	996-5449
Copper corrosion	Elboujdaini, Mimoun	995-3971
Copper/nickel metallurgy	Dutrizac, John	995-4823
Corrosion, automotive	Ramsingh, Ruel	995-4654
Corrosion, fatigue	Zheng, Wenyue	992-7904
Corrosion, general	Revie, Winston	992-1703
Corrosion, high-temperature/pressure	Papavinasam, Sankara	947-3603
Corrosion, hydrogen-induced cracking	Elboujdaini, Mimoun	995-3971
Corrosion, inhibition	Papavinasam, Sankara	947-3603
Corrosion, microbial	MacLeod, Alex	992-1416
Corrosion, mines	Ramsingh, Ruel	995-4654
Corrosion/erosion, high temperature	Al Taie, Ihsan	992-2288
Cyanide, recycling in effluents	Riveros, Patricio	992-0200
Diesel emissions	Gangal, Mahe	996-6103
Dust, coal	Bonnell, Gary	(705) 670-6766
Dust, mineral/silica (RCD - diesel soot)	Grenier, Michel	(705) 677-7815

SUBJECT	CONTACT	TELEPHONE
Mineral Technology and Explosives (cont'd)		
Dust, respirable combustible (RCD - diesel soot)	Gangal, Mahe	996-6103
Effluents treatment, microbiology	Béchard, Geneviève	992-2489
Electron microprobe	McMahon, Gregory	947-3321
Electron probe microanalysis	Packwood, Rod	992-2288
Electron spectroscopy	Brown, Jim	996-8673
Embrittlement, materials	Tyson, Bill	992-9573
Environmental baselining	VanHuyssteen, Errol	992-1392
Environmental Geographic Information System	VanHuyssteen, Errol	992-1392
Environmental protection, acid mine drainage	Hynes, Tom	943-0524
Enviironmental protection, aquatic effects	Campbell, Diane	992-1204
Environmental protection, aquatic impact assessment	Hynes, Tom	943-0524
Environmental protection, control strategies	Davé, Nand	943-9283
Environmental protection, minerals and metals	Béchard, Geneviève	992-2489
Environmental radiation, general	Davé, Nand	943-9283
Explosives technology	Vandebeek, Ron	995-1275
Explosives, act and regulations	McCulloch, Dave	995-8995
Explosives, certification and testing	Bowes, Richard	995-0097
Explosives, chemical analysis	Ridley, Bill	995-1413
Explosives, commercial	Lightfoot, Phil	947-7534
Explosives, general	Watson, Christopher	995-8251
Explosives, mathematical modelling	Jones, David	995-2140
Explosives, mechanical and electrical equipment	Hanley, Peter	995-6058
Explosives, physics	Von Rosen, Bert	947-3527
Explosives, propellants	Matusoff, Constantin	943-8278
Explosives, pyrotechnics	Contestabile, Ettore	995-1363
Explosives, thermal hazards	Jones, David	995-2140
Failure analysis	Bouchard, Réal	992-5012
Fatigue and fracture, welded joints	Braid, Mac	992-6400
Fires, explosions, emergency response, coal mines	Bonnell, Gary	(705) 670-6766
Fireworks, ammunition, explosives	Saulnier, Léo	995-2829
Fly ash, use in concrete	Bilodeau, Alain	992-3806
Foundry processes, energy-efficient	Whiting, Laurence	992-1598
Foundry sand molding	Lacroix, Richard	992-9504
Foundry sand recycling	Whiting, Laurence	992-1598
Foundry sand testing	Whiting, Laurence	992-1598
Foundry technology, nonferrous metals	Sahoo, Mahi	992-5475
Fracture mechanics	Tyson, Bill	992-9573
Fuel cells, fabrication	Maffei, Nicola	992-1391

SUBJECT	CONTACT	TELEPHONE
Mineral Technology and Explosives (cont'd)		
Galvanizing	Ramsingh, Ruel	995-4654
Galvannealing	Dionne, Sylvie	996-9701
Gas analysis, diesel exhaust	Gangal, Mahe	996-6103
Gas analysis, methane	Young, David	943-9265
Gleeble process simulation	Gianetto, Jim	992-4425
Gold cyanidation	Deschênes, Guy	992-0415
Gold processing	Deschênes, Guy	992-0415
Ground control and stability, mines and tailings embankments	Bétournay, Marc	995-1147
Hard rock mines, field and laboratory rock characterization	Labrie, Denis	995-3986
Hard rock mines, microseismic monitoring	Plouffe, Michel	(819) 736-4331
Hard rock mines, rock testing	Gorski, Bernie	996-3216
Hard rock mines, seismic surveying	Plouffe, Michel	(819) 736-4331
Hard rock mines, surface control	Bétournay, Marc	995-1147
Heat treatment, aluminum alloys	Emadi, Daryoush	995-4850
Hoisting technology, wire ropes	Leung, Eric	992-6792
Hot ductility	Es-Sadiqi, Elhachmi	992-2780
Hydro forming	Martin, Pierre	992-8283
Hydrogen cracking	Elboujdaini, Mimoun	995-3971
Hydrogen embrittlement	Elboujdaini, Mimoun	995-3971
Hydrogen fuel cell, mine application	Bétournay, Marc	995-1147
Hydrometallurgy, base metals	Dutrizac, John	995-4823
Hydrometallurgy, gold	Deschênes, Guy	992-0415
Image analysis, applied mineralogy	Wilson, John	992-1394
Image analysis, metals and alloys	Shehata, Mahmoud	992-1940
Image analysis, mineral processes, performance assessment	Lastra, Rolando	992-1393
Inactive mine hazards	Bétournay, Marc	995-1147
Inactive mines database	Vance, Jim	996-8604
Intermetallics	Voyzelle, Benoit	992-4397
International liaison, CANMET	Lorenzato, Diane	996-1288
Ion beam microscopy	Malis, Tom	992-2310
Ion exchange	Riveros, Patricio	992-0200
Iron ore processing	Wilson, John	992-1394
Leaching, bacterial	Gould, Doug	992-1885
Leaching, gold chemistry	Deschênes, Guy	992-0415
Leaching, metal mine wastes	Zinck, Janice	995-4221
Leaching, mine wastes	Zinck, Janice	995-4221
Lead sinter mineralogy	VanHuyssteen, Errol	992-1392
Lead-free plumbing alloys	Sadayappan, Kumar	992-0741
Lead/zinc metallurgy	Dutrizac, John	995-4823
Life-cycle assessment, mineral technology	Dubreuil, Alain	995-5844
Lightweight materials initiative	Jackman, Jennifer	996-8997

SUBJECT	CONTACT	TELEPHONE
Mineral Technology and Explosives (cont'd)		
Marine corrosion	Revie, Winston	992-1703
Marine vessels, materials	Braid, Mac	992-6400
Materials performance	Tyson, Bill	992-9573
Materials processing technology	Bowker, John	992-0710
Materials, battery/magnetic	Wronski, Zbig	992-0160
Materials, nanostructured	Wronski, Zbig	992-0160
Materials, physical characterization	Wronski, Zbig	992-0160
Materials, structural integrity	Braid, Mac	992-6400
Mechanical testing, materials	Bouchard, Réal	992-5012
Metal forming processes, mathematical modelling of	Es-Sadiqi, Elhachmi	992-2780
Metal forming, experimental	Martin, Pierre	992-8283
Metal matrix composites	Lo, Jason	992-2669
Metal powder injection moulding	Lo, Jason	992-2669
Metal processing and alloying design	Es-Sadiqi, Elhachmi	992-2780
Metal products, fabricated	Martin, Pierre	992-8283
Metallography	Dionne, Sylvie	996-9701
Metallurgy, extractive, aluminum/magnesium	Dutrizac, John	995-4823
Metallurgy, extractive, chemistry	Dutrizac, John	995-4823
Metallurgy, extractive, copper/nickel	Dutrizac, John	995-4823
Metallurgy, extractive, gold/silver	Deschênes, Guy	992-0415
Metallurgy, light metals	Dutrizac, John	995-4823
Metals formability/sheet metal forming	Martin, Pierre	992-8283
Metals, hazard identification criteria	Skeaff, Jim	992-0092
Microscopy, minerals	Laflamme, Gilles	992-1410
Microseismic data analysis and interpretation	Vance, Jim	996-8604
Microseismic source location	Vance, Jim	996-8604
Microseismic system layout	Vance, Jim	996-8604
Microseismology, mines and oil fields	Talebi, Shahriar	996-0360
Microstructural characterization	Malis, Tom	992-2310
Mine backfill	Annor, Alfred	(705) 670-6550
Mine decommissioning	Bétournay, Marc	995-1147
Mine dust	Grenier, Michel	(705) 677-7815
Mine Effluents Program	Koren, David	992-7286
Mine environment, excluding coal	Hardcastle, Stephen	(705) 677-7810
Mine instrumentation	Vance, Jim	996-8604
Mine mechanization/automation	Laflamme, Marcel	(819) 736-4331
Mine stability, hard rock	Bétournay, Marc	995-1147
Mine stability, potash	Vance, Jim	996-8604
Mine tailings environment technology	Davé, Nand	943-9283
Mine technology, equipment and materials certification	Lobay, George	996-1902
Mine technology, experimental mine	Laflamme, Marcel	(819) 736-4331
Mine technology, general	Bétournay, Marc	995-1147
Mine ventilation, automation	Hardcastle, Stephen	(705) 677-7810
Mine ventilation, coal	Bonnell, Gary	(705) 670-6766
Mine ventilation, general	Hardcastle, Stephen	(705) 677-7810

SUBJECT	CONTACT	TELEPHONE
Mineral Technology and Explosives (cont'd)		
Mine ventilation, modelling/optimization	Hardcastle, Stephen	(705) 677-7810
Mine ventilation, monitoring	Gangal, Mahe	996-6103
Mine waste disposal, dusts and gases, metallurgical	Skeaff, Jim	992-0092
Mine waste disposal, general	Hynes, Tom	943-0524
Mine waste disposal, liquid effluents	Koren, David	992-7286
Mine waste disposal, tailings	Davé, Nand	943-9283
Mine waste management	Tremblay, Gilles	992-0968
Mine-site rehabilitation	VanHuyssteen, Errol	992-1392
Mineral processing, flotation	Negeri, Tesfaye	992-5860
Mineral processing, magnetic separation	Bilodeau, Magella	992-7131
Mineralogy, electrolysis products	Chen, T-T	995-9490
Mineralogy, geo-exploration	Paktunc, Dogan	947-7061
Mineralogy, micro-beam techniques	Cabri, Louis	995-4073
Mineralogy, precious metals	Cabri, Louis	995-4073
Mining communications	Dauphin, Philippe	947-0798
Mining equipment, automation	Leblanc, Gilles	(819) 736-4331
Mining equipment, development	Laflamme, Marcel	(819) 736-4331
Mining equipment, hydraulification	Laflamme, Marcel	(819) 736-4331
Mining methods, narrow-vein	Laflamme, Marcel	(819) 736-4331
Mining, aquatic effects	Campbell, Diane	992-1204
Mining, deep extraction methods	Udd, John	947-8383
Mining, ground control	Vance, Jim	996-8604
Mining, ground stress	Arjang, Behrouz	947-1585
Mining, health and safety	Udd, John	947-8383
Mining, life-cycle assessment	Dubreuil, Alain	995-5844
Mobile foundry	Whiting, Laurence	992-1598
Nitrate, destruction in effluents	Koren, David	992-7286
Non-Destructive Testing Certification Program	Murphy, Rick	943-0583
Numerical modelling, geomechanics/discontinuum models	Li, Gary	996-4449
Offshore structures, concrete	Bilodeau, Alain	992-3806
Offshore structures, steel	Braid, Mac	992-6400
Petrochemical industry, materials	Braid, Mac	992-6400
Pipeline coatings	Papavinasam, Sankara	947-3603
Pipeline materials and technology, oil and gas	Revie, Winston	992-1703
Pipeline stress corrosion cracking	Zheng, Wenyue	992-7904
Potash, product quality	King, Pierrette	947-7383
Power generation, materials	Braid, Mac	992-6400
Pressure vessels, materials	Bowker, John	992-0710
Process minerology	Lastra, Rolando	992-1393
Process simulation facilities	Es-Sadiqi, Elhachmi	992-2780

SUBJECT	CONTACT	TELEPHONE
Mineral Technology and Explosives (cont'd)		
Process tailings management	VanHuyssteen, Errol	992-1392
Pyrometallurgy	Skeaff, Jim	992-0092
Pyrometallurgy, high-temperature sensors	Dubreuil, Alain	995-5844
Pyrotechnics	Contestabile, Ettore	995-1363
Radiation, environmental	Davé, Nand	943-9283
Rail steels	Gianetto, Jim	992-4425
Recycling technology, metals	Es-Sadiqi, Elhachmi	992-2780
Recycling, metal	Es-Sadiqi, Elhachmi	992-2780
Recycling, minerals, general	Giziewicz, Elizabeth	996-1581
Reference materials, mineralogical and metallurgical	Leaver, Maureen	992-1055
Residual stress measurements	Roy, George	992-0328
Respirable dust and gases, coal mining	Bonnell, Gary	(705) 670-6766
Respirable dust and gases, hard rock mines	Grenier, Michel	(705) 677-7815
Rock mechanics, evaporites	Vance, Jim	996-8604
Rock mechanics, instrumentation development	Judge, Ken	996-2[illegible]0
Rockburst technology	Bétournay, Marc	995-1147
Rolled products	Baragar, Don	995-8692
Salt mines, instrumentation development	Vance, Jim	996-8604
Salt mines, stress measurement	Arjang, Behrouz	947-1585
Scanning Auger microscopy	Brown, Jim	996-8673
Scanning electron microscopy	de Silveira, Glynis	995-2132
Secondary ion mass spectrometry	McMahon, Gregory	947-3321
Seismic data collection	Lebel, Denis	(705) 677-7808
Seismicity	Plouffe, Michel	(819) 736-4331
Sensors and actuators	Wheat, Tom	992-1395
Sensors, fabrication	Ahmad, Aftab	992-0256
Shape memory alloys	Zhang, Ruby	996-1380
Slags, environmental issues	Koren, David	992-7286
Slags, metallurgy	Skeaff, Jim	992-0092
Sludge, mine effluent neutralization	Zinck, Janice	995-4221
Smelting	Skeaff, Jim	992-0092
Software development, ground control, expert systems	Vongpaisal, Somchet	996-4302
Software development, jointed rock modelling	Li, Gary	996-4449
Software development, numerical modelling	Li, Gary	996-4449
Software development, ventilation modelling	Hardcastle, Stephen	(705) 677-7810
Solution chemistry	Riveros, Patricio	992-0200
Solvent extraction	Riveros, Patricio	992-0200

SUBJECT	CONTACT	TELEPHONE
Mineral Technology and Explosives (cont'd)		
Spectroscopy, inductively coupled plasma (ICP), atomic emission/mass	Desroches, Diane	943-0233
Spectroscopy, metals/nuclear	Davé, Nand	943-9283
Spectroscopy, optic emission	Desroches, Diane	943-0233
Sports equipment, materials	Lo, Jason	992-2669
Squeeze casting, composites	Lo, Jason	992-2669
Stability of slopes, foundations and mine stopes	Li, Gary	996-4449
Steel technology, general	Es-Sadiqi, Elhachmi	992-2780
Steel, alloying and process design	Liu, Weijie	943-0209
Stir casting, composites	Popescu, Mihaela	992-0949
Stress corrosion cracking, pipelines treatment	MacLeod, Alex	992-1416
Stress measurement and analysis, materials	Roy, George	992-0328
Subaqueous disposal, mine wastes	Davé, Nand	943-9283
Subsidence, hard rock mines	Bétournay, Marc	995-1147
Surface chemical analysis	Brown, Jim	996-8673
Surface modification	Wronski, Zbig	992-0160
Sustainable development, mineral technology	Dubreuil, Alain	995-5844
Tailings and waste rock program	Blanchette, Marcia	995-4641
Tailings characterization	VanHuyssteen, Errol	992-1392
Tailings disposal	Davé, Nand	943-9283
Tailings management	VanHuyssteen, Errol	992-1392
Tailings, acid	Tremblay, Gilles	992-0968
Tailings, effluents treatment	Koren, David	992-7286
Tailings, environment	Hynes, Tom	943-0524
Tailings, physical stability	Bétournay, Marc	995-1147
Tailings, radioactive	Davé, Nand	943-9283
Tailings, stability	Bétournay, Marc	995-1147
Tailings, stability monitoring	Gorski, Bernie	996-3216
Tailings, uranium	Tremblay, Gilles	992-0968
Tailings, water covers	Davé, Nand	943-9283
Thermal treatment processes	Aota, Jay	992-1390
Thermochemistry	Skeaff, Jim	992-0092
Thin slab casting	Es-Sadiqi, Elhachmi	992-2780
Thiosalts, mill effluents	Dinardo, Orlando	992-0088
Tracer gas techniques, applications	Hardcastle, Stephen	(705) 677-7810
Tracer gas techniques, coal mines	Bonnell, Gary	(705) 670-6766
Transmission electron microscopy	Botton, Gianluigi	992-3878
Ultramicrotome sectioning	Malis, Tom	992-2310
Uranium waste repositories	Bétournay, Marc	995-1147
Uranium, environment	Hynes, Tom	943-0524
Uranium, extraction	VanHuyssteen, Errol	992-1392

SUBJECT	CONTACT	TELEPHONE
Mineral Technology and Explosives (cont'd)		
Value-Added Mineral and Metal Strategy	Jackman, Jennifer	996-8997
Wastewater treatment, mine effluents	Koren, David	992-7286
Welding and joining technology	Braid, Mac	992-6400
X-ray diffraction techniques	Wronski, Zbig	992-0160
X-ray diffraction, minerals	Chen, T-T	995-9490
X-ray diffraction, silica	Grenier, Michel	(705) 677-7815
X-ray photoelectron spectroscopy	Brown, Jim	996-8673
Zeolite, mineral technology	Riveros, Patricio	992-0200

BRANCH RESPONSIBILITIES

MINERAL AND METAL POLICY BRANCH

580 Booth Street, 10th Floor
Ottawa, Ontario, Canada
K1A 0E4

Denis Lagacé, A/Director General
Telephone: (613) 995-7029
Facsimile: (613) 992-8581
E-mail: dlagace@nrcan.gc.ca

The Mineral and Metal Policy Branch (MMPB) promotes the sustainable development of Canada's minerals and metals industry in Canada and internationally. The Branch is the federal government's main source of in-depth knowledge and expertise on mineral and metal commodities (including coal) and their global markets, and on international and Canadian policy issues related to minerals and metals. MMPB carries out these responsibilities by:

- developing and recommending federal policies for sustainable mineral development;
- developing and participating in international and domestic policy initiatives;
- coordinating policies and facilitating information exchange with the provinces and territories;
- outlining strategic directions for the Minerals and Metals Sector; and
- administering the federal mandate for the Cape Breton Development Corporation.

International and Domestic Market Policy Division
Alek Ignatow, A/Director
Tel.: (613) 992-2018, Fax: (613) 943-2079
E-mail: aignatow@nrcan.gc.ca

Policy Analysis and Coordination Division
Robert Irvine, Director
Tel.: (613) 995-1297, Fax: (613) 992-8581
E-mail: rirvine@nrcan.gc.ca

Sustainable Development Policy Integration Division
David Pasho, Director
Tel.: (613) 992-7958, Fax: (613) 992-8263
E-mail: dpasho@nrcan.gc.ca

ECONOMIC AND FINANCIAL ANALYSIS BRANCH

580 Booth Street, 9th Floor
Ottawa, Ontario, Canada
K1A 0E4

Keith Brewer, Director General
Telephone: (613) 992-2662
Facsimile: (613) 943-8453
E-mail: kbrewer@nrcan.gc.ca

The Economic and Financial Analysis Branch (EFAB) promotes the international competitiveness of the Canadian minerals and metals industry and a favourable investment climate for exploration and mine development in Canada. The Branch carries out this responsibility by:

- developing and recommending federal fiscal, financial and economic policies;
- providing detailed information and analysis to potential investors in Canada and abroad; and
- providing advice and support to other federal departments in implementing policies and administering laws that affect the minerals and metals industry.

The Branch is a major source of analysis and advice on a broad range of issues including: all aspects of Canada's competitiveness in mining, the economic and financial impacts of mineral development, and the appropriate design of federal policies to achieve economic, taxation and related goals. The Branch is responsible for the collection, analysis and dissemination of comprehensive statistics on the Canadian minerals industry describing ore reserves, exploration, and mineral production and consumption, and for the conduct, in collaboration with Statistics Canada and the provincial and territorial governments, of various surveys of mineral exploration and production. It also provides technical interpretation of the federal *Income Tax Act* and *Excise Tax Act* as they relate to mining, and issues mineral resource certifications in compliance with these acts.

In recent years, the Branch has led federal/provincial/industry studies of the impacts on Canada's mineral investment climate of changes in mineral taxation, environmental regulation, and other policy areas. It has also conducted seminars and participated in conferences in Canada and internationally to broadcast messages about the attractiveness of mining in Canada.

Economic Analysis Division
Dale Hull, Director
Tel.: (613) 995-5301, Fax: (613) 943-8453
E-mail: dhull@nrcan.gc.ca

Minerals and Mining Statistics Division
Yvan Gauthier, Director
Tel.: (613) 996-5786, Fax: (613) 992-5565
E-mail: ygauthie@nrcan.gc.ca

Tax and Mineral Resources Division
Robert Clark, Director
Tel.: (613) 996-3286, Fax: (613) 943-8453
E-mail: rclark@nrcan.gc.ca

MINERAL TECHNOLOGY BRANCH

555 Booth Street, 1st Floor
Ottawa, Ontario, Canada
K1A 0G1

Jean-Claude St-Pierre, Director General
Telephone: (613) 995-4088
Facsimile: (613) 947-6606
E-mail: jstpierr@nrcan.gc.ca

The Mineral Technology Branch (MTB) is composed of three laboratories (the Mining and Mineral Sciences Laboratories, the Materials Technology Laboratory, and the Canadian Explosives Research Laboratory) and the Explosives Regulatory Division, which administers Canada's *Explosives Act* and Regulations.

22

Mining and Mineral Sciences Laboratories (MMSL)

Roy Sage, Director
Tel.: (613) 947-6604, Fax: (613) 992-8928
E-mail: rsage@nrcan.gc.ca

MMSL focusses on research and development in the following areas:

- mining effluents;
- tailings and waste rock;
- metals and the environment;
- metallurgical processing;
- ground control;
- mine mechanization/automation; and
- underground mine environment.

MMSL conducts research and development over a wide range of processes and technologies involved in transforming ore that has been removed from the ground into a concentrate, mineral product or metal. An international reputation for technical excellence in conventional mineral processing is augmented by recognized leadership in developing technological solutions to reduce the environmental liabilities facing the minerals industry.

Wherever possible, MMSL works in partnership with industry, provincial/territorial governments, universities and other research institutes. Current activities focus on three principal strategic directions:

- promoting sustainable development by finding technically sound solutions to environmental problems;
- improving industry competitiveness through enhanced productivity; and
- improving health and safety in the underground mining environment.

For additional information on how MMSL can benefit your company, contact:

23

Philippe Dauphin
Manager, Business Development Office
MMSL - CANMET
Minerals and Metals Sector
Natural Resources Canada
555 Booth Street
Ottawa, Ontario, Canada
K1A 0G1

Tel.: (613) 947-0798, Fax: (613) 947-0983
E-mail: pdauphin@nrcan.gc.ca

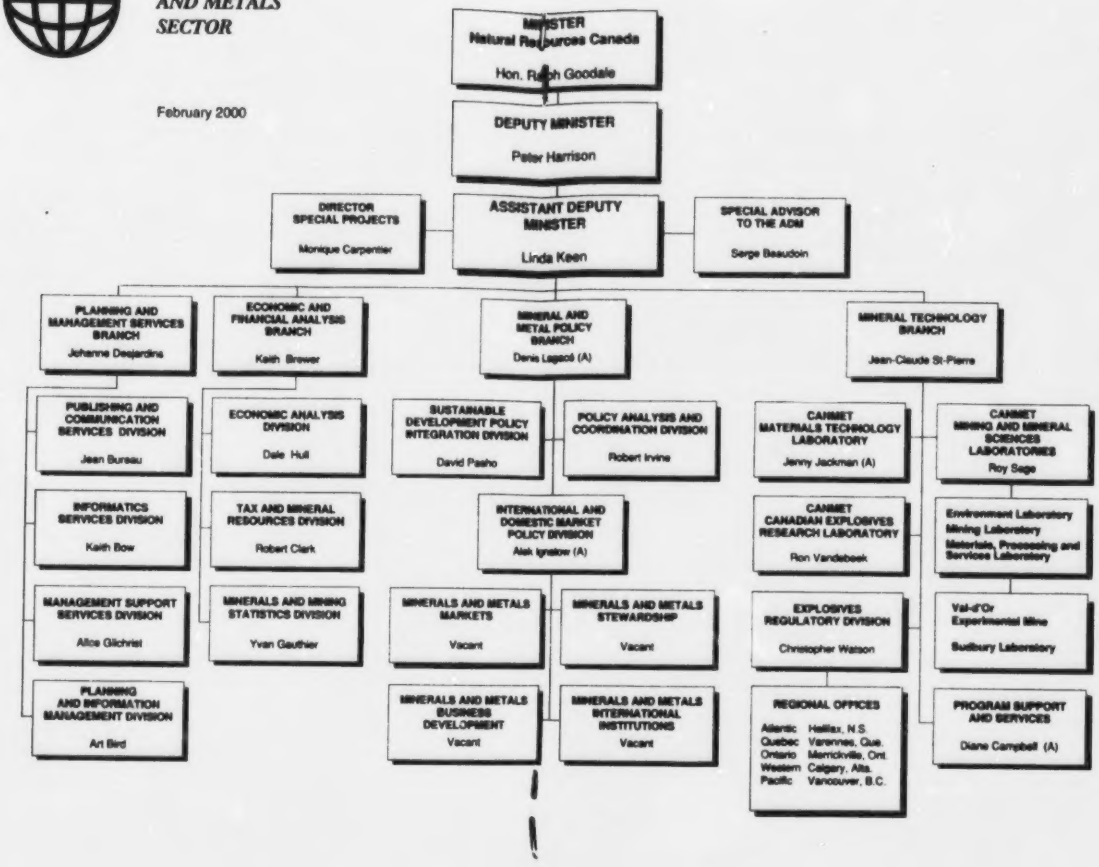
Materials Technology Laboratory (MTL)

Jennifer Jackman, A/Director
Tel.: (613) 995-8248, Fax: (613) 992-8735
E-mail: jjackman@nrcan.gc.ca

In collaboration with industry, MTL conducts applied research, and develops and deploys technologies, to improve all aspects of producing and using value-added products from minerals and metals. Specifically, MTL uses its specialists and one-of-a-kind laboratory facilities in metal processing and joining, corrosion prevention, ceramic and concrete technology, physical and mechanical testing, micro-characterization of materials, prototype

MINERALS AND METALS SECTOR

February 2000



fabrication, and advanced materials development to:

- help Canadian firms develop new products and services;
- achieve higher performance from metal alloys, ceramics, concrete, and metal- or mineral-based advanced materials;
- provide sound technical input to standards and codes development;
- assist Canadian firms to use more efficient production techniques, resulting in energy and cost savings;
- improve the reliability of Canadian steel and concrete infrastructure, such as oil and gas pipelines and concrete bridges, with a resultant impact on public safety and enhanced effectiveness of public expenditures; and
- develop specialized materials for energy-efficient products that result in reduced greenhouse gases.

For information on how MTL can benefit your company, contact:

Alan Bowles
Manager, Business Communications
MTL - CANMET
Minerals and Metals Sector
Natural Resources Canada
568 Booth Street
Ottawa, Ontario, Canada
K1A 0G1

Tel.: (613) 995-8814, Fax: (613) 992-8735
E-mail: abowles@nrcan.gc.ca

Canadian Explosives Research Laboratory (CERL)

Ron Vandebeek, Manager
Tel.: (613) 995-1275, Fax: 995-1230
E-mail: rvandebe@nrcan.gc.ca

The CERL is Canada's national centre for the advancement of technology related to the manufacture, storage and transportation of explosives. It is the only Canadian facility of its kind for testing equipment for use in hazardous locations. The CERL is accredited as a testing laboratory under ISO/IEC Guide 25. The Explosives Regulatory Division of Natural Resources Canada is one of its major clients because the CERL is mandated to perform explosives testing under the *Explosives Act*.

The CERL provides a variety of services to clients including testing, hazard evaluation and development. Its strategic thrusts are to:

- develop, promote and deliver effective testing to clients;
- formulate innovative solutions to address explosive industry challenges;
- develop opportunities in the environmental field related to explosives and associated energetic materials; and
- evolve into a world-class one-stop testing centre for its clients.

For information on how CERL can benefit your company, contact:

Brian Beard
Business Coordination
CERL - CANMET
Minerals and Metals Sector
Natural Resources Canada
Bells Corners Complex, Building no. 12
Nepean, Ontario, Canada
K1A 0G1

Tel.: (613) 995-8917, Fax: (613) 995-1230
E-mail: bbeard@nrcan.gc.ca

Explosives Regulatory Division (ERD)

Christopher Watson, Director
Tel.: (613) 995-8415, Fax: (613) 995-0480
E-mail: cwatso@nrcan.gc.ca

The ERD is responsible for administering Canada's *Explosives Act* and Regulations. This is done through a system of licences and permits supported by a compliance inspection program. The importation, manufacture,

storage, sale and some aspects of transportation by road of propellants, fireworks and other pyrotechnics in Canada are controlled under this program. The Division's principal thrust is public and worker safety throughout Canada. Other strategic thrusts include:

- delivery of easy-to-understand regulations in plain language;
- accessibility;
- consultation; and
- education.

PLANNING AND MANAGEMENT SERVICES BRANCH

580 Booth Street, 10th Floor
Ottawa, Ontario, Canada
K1A 0E4

Johanne Desjardins, Director
Telephone: (613) 996-1700
Facsimile: (613) 952-7501
E-mail: jdesjard@nrcan.gc.ca

The Planning and Management Services Branch (P&MSB) provides corporate services to the Minerals and Metals Sector in the areas of business and human resource planning, information technology and management, administration and personnel support, and publishing and communications. The branch also advises senior management on the planning and delivery of sector services, systems and operational procedures for the efficient and effective management of sector resources.

A list of the publications produced by the Minerals and Metals Sector on the Canadian minerals and metals industry can be found beginning on the following page and on the Internet at **http://www.nrcan.gc.ca/mms/ms-e.htm**.

ERALS AND TALS SECTOR PUBLICATIONS

The Minerals and Metals Sector publishes a wide range of publications that provide comprehensive statistics and information on the minerals and metals industry in Canada. Information on how to obtain copies or on how to access them on the Internet is provided in the following pages.

For additional information regarding the Minerals and Metals Sector's publishing program, contact the Chief, Publishing and Communication Services Division, by telephone at (613) 996-1611, by facsimile at (613) 947-4198, or by e-mail at jebureau@nrcan.gc.ca.

CANADIAN MINING INDUSTRY

Minerals and Metals Policy of the Government of Canada

In November 1996, the Cabinet approved a new *Minerals and Metals Policy of the Government of Canada*. The Policy, subtitled *Partnerships for Sustainable Development*, incorporates the concept of sustainable development into a comprehensive federal policy document with respect to minerals and metals. The Policy follows an extensive consultation process with all stakeholders. It represents an important source of guidance for federal decision-making on minerals and metals in the context of sustainable development.

In addition to English and French, copies of the Policy are available in Spanish, Portuguese,

Japanese, Mandarin and Russian. Limited quantities can be obtained by contacting:

Publications Distribution Office
Minerals and Metals Sector
Natural Resources Canada
Ottawa, Ontario, Canada
K1A 0E4

Telephone: (613) 943-0555
Facsimile: (613) 947-1018
E-mail: gkingsle@nrcan.gc.ca

This document is also available on the Internet at **http://www.nrcan.gc.ca/mms/sdev/policy-e.htm**.

MINERAL REPORTS AND BULLETINS

Studies of current interest on mineral resources, reserves and production are published in this series. These are priced publications that can be purchased by contacting:

Geological Survey of Canada Bookstore
Ottawa, Ontario, Canada
K1A 0E4

Telephone: (613) 995-4342
Toll-free in Canada and the United States: 1-888-252-4301
Facsimile: (613) 943-0646
E-mail: gsc_bookstore@gsc.nrcan.gc.ca

Please note that the shipping and handling fee is extra. Prepayment of publication orders is required by cheque or money order payable to the Receiver General for Canada (Canadian funds only). Payment may also be made by VISA or MasterCard. Please provide your name, credit card issuer and number, and expiry date.

The following publications are currently available:

Canadian Minerals Yearbook, 1998 – Review and Outlook

This edition reports on the activities of the Canadian minerals and metals industry over the past year, identifies the predominant developments during 1998, and indicates major trends in the industry and in global markets. The 20 commodity chapters feature economic and policy developments, markets, prices, trade, and production and consumption data specific to each commodity. They also provide a forecast of the industry's future position. Current and previous commodity reviews are available on the Internet at **http://www.nrcan.gc.ca/mms/cmy/index_e.html**.

(Note: The 1999 edition will be published in late 2000.)

Catalogue No.: M38-5/47E

Price: C$55.00 in Canada

C$71.50 in the United States and other countries

Metallurgical Works in Canada, Primary Iron and Steel, 1999

This annual report lists in detail the facilities, productive capacities, products and other data of companies that comprised the primary iron and steel industry in Canada as of January 1, 1999. There are also separate sections pertaining to the steel pipe and tube industry as well as the iron powder and ferrite industry.

Catalogue No.: M38-2/248

Price: C$25.95 in Canada

C$33.75 in the United States and other countries

Mining and Mineral Processing Operations in Canada, 1999

This annual report is a compilation of information related to mines and processing facilities in Canada as of June 1, 1999. Its two major sections, "Metal and Industrial Mineral Mines and Processing Plants in Canada" and "Metallurgical Works in Canada, Nonferrous and Precious Metals," provide data such as the name and address of the operator, the location

of the mine or plant, and its capacity, processes, products and other details of special interest.

Catalogue No.: M38-2/249E

Price: C$25.95 in Canada

C$33.75 in the United States and other countries

PERIODICALS

The Minerals and Metals Sector publishes monthly and other periodicals. These publications present a general review of the more important current developments in the Canadian minerals and metals industry. To be placed on our mailing list please write to:

Publications Distribution Office
Minerals and Metals Sector
Natural Resources Canada
580 Booth Street
Ottawa, Ontario, Canada
K1A 0E4

Telephone: (613) 943-0555
Facsimile: (613) 947-1018
E-mail: gkingsle@nrcan.gc.ca

Contact Newsletter

The objective of this newsletter is to inform MMS clients about developments in federal policies, programs and S&T that affect the Canadian minerals and metals industry. This newsletter is available on the Internet at **http://www.nrcan.gc.ca/mms/news-e.htm**.

International Communiqué

This newsletter, which is published approximately every two months, reviews international events and activities that affect minerals and metals. Each issue presents a concise overview of important activities and events, including those involving Natural Resources Canada. Brief summaries on a range of issues, contact names, and sources of additional information are also provided.

The Communiqué is available on the Internet at **http://www.nrcan.gc.ca/mms/icomm-e.htm**.

Production of Canada's Leading Minerals

This is a monthly statistical bulletin on mineral production in Canada. Production is tabulated for aluminum, asbestos, cement, clay products, copper, diamonds, fuels, gold, gypsum, iron ore, lead, lime, molybdenum, nickel, potash, salt, silver, uranium and zinc. These monthly statistics are available on the Internet at **http://www.nrcan.gc.ca/mms/efab/data**. Paper copies are available on a quarterly basis.

SPECIAL REPORTS

Major studies undertaken by the Minerals and Metals Sector are published and made available to our readers as special reports. URLs are provided for those that are available on the Internet. To obtain printed copies contact:

Publications Distribution Office
Minerals and Metals Sector
Natural Resources Canada
580 Booth Street
Ottawa, Ontario, Canada
K1A 0E4

Telephone: (613) 943-0555
Facsimile: (613) 947-1018
E-mail: gkingsle@nrcan.gc.ca

Background Paper on Land Access, Protected Areas and Sustainable Development

The purpose of this paper, prepared in July 1998, is to clarify Canada's protected areas initiatives for the minerals and metals industry, thereby creating greater certainty for the industry's investment decisions. It also presents ideas for discussion that can hopefully advance Canada's environmental, social and economic objectives. More specifically, the paper documents the evolution in thinking about protected areas over the last 125 years, examines

ongoing protected areas programs to determine whether they will achieve stated environmental, social and economic objectives, and suggests how present approaches could be modified to better realize Canada's overarching policy objectives of implementing sustainable development. This background paper is available on the Internet at **http://www.nrcan.gc.ca/mms/pubs/land-e.pdf**.

Canada's International Competitiveness – Selected Papers

These papers are published versions of remarks made by Dr. Keith Brewer and Dr. Dale Hull of the Minerals and Metals Sector during presentations over the last two years in Europe and North America. These presentations covered a wide variety of issues that directly or indirectly affect Canada's investment climate for mineral capital, including Canada's geological potential, and recent domestic and international economic, fiscal and financial developments.

- *The Global Environment for Mining: A Canadian Perspective* (London, March 1998)
- *Mining: Canada's Competitive Advantage*, 101st National Western Mining Conference (Colorado Springs, April 1998)
- *Mineral Policy and Comparative Fiscal and Taxation Regimes for Mining*, Global Mining Investment Opportunities Symposium (Montréal, May 1998), and Mining Investment and Business Opportunities in Central Asia, the Balkan and Caucasus Countries (Istanbul, June 1998)
- *The Global Environment for Mining: A Canadian Perspective - Colombian Mission* (Vancouver, June 1998)
- *Canada: A Window on Global Mining, World-Class Technology and Investment Prospects* (Tokyo, February 1999)
  - *Mining and Minerals: Canada's Competitive Advantage*
  - Conference Proceedings
- *Canada's Minerals and Metals Industry: An Economic Overview* (October 1999)
- *Investing in China's Mining Sector - The Canadian View* (October 1999)
- *National and International Perspectives on the Canadian Mining Industry* (Fredericton, November 1999)

Environmental Regulations Affecting Mining in Canada

A series of three reports were prepared for the Mines Ministers' Conference held in July 1998 in Calgary, Alberta.

The first report, entitled *Report on a Federally Coordinated Review of Federal Environmental Regulations Affecting Mining in Canada*, was prepared by Natural Resources Canada in collaboration with the Canadian Environmental Assessment Agency, Environment Canada, Finance Canada, Fisheries and Oceans Canada, Indian and Northern Affairs Canada, Industry Canada, and Treasury Board. It is the federal component of a federal-provincial-territorial review of regulations affecting mining that reports on regulatory reform and identifies opportunities for improving the efficiency of the regulatory and decision-making process. This report is available on the Internet at **http://www.nrcan.gc.ca/mms/pubs/fedrev-e.pdf**.

The second report, entitled *Report on the National Workshop on Environmental Regulations Affecting the Mining Sector*, was compiled by Natural Resources Canada. It documents the results of a multi-stakeholder national workshop that was held in Toronto on April 8 and 9, 1998, to discuss the federal acts and regulations under review and their interactions with relevant provincial and territorial regulations. This report is available on the

Internet at **http://www.nrcan.gc.ca/mms/pubs/work-e.pdf**.

The third report, entitled *An Overview Report: Federal-Provincial-Territorial Review of Environmental Regulations Affecting Mining in Canada*, was compiled by the IGWG Industry Task Force on Regulatory Reform in consultation with relevant federal and provincial regulatory agencies and stakeholders. Individual jurisdictions prepared review that were appropriate to their respective priorities, needs and circumstances. The results of the review were discussed at a national workshop held in Toronto on April 8 and 9, 1998. The individual jurisdictional reports and the report on the national workshop served as the basis for the preparation of this overview report. It is available on the Internet at **http://www.nrcan.gc.ca/mms/pubs/overv-e.pdf**.

From Mineral Resources to Manufactured Products: Toward a Value-Added Mineral and Metal Strategy for Canada

This issues paper, published in June 1998, provides a very broad overview of the mineral and metal processing (MMP) sector, illustrating its importance to employment in Canada and some dynamic trends. It also describes some of the challenges to growth of value-added activities within the direct chain of production or in ancillary spin-off industries. Finally, the paper suggests several routes for government collaboration that may lead to an increase in MMP value-added activities. This report is available on the Internet at **http://www.nrcan.gc.ca/mms/pubs/value-e.pdf**.

Iron Ore 2000: Poised for the Next Century

This discussion paper was developed in response to requests by Canadian iron ore companies for a comparison of mining costs on a world scale to assist them in determining their global cost-competitiveness. The study identifies market niches and global areas on which iron ore producers should concentrate, reviews technological trends and changes, describes the European, Asian and North American steel industries, outlines the competitiveness of the Canadian iron ore industry, and examines the problem of vulnerable Canadian mines. The study ends with conclusions concerning the main topics discussed in the report.

Market Trends for Industrial Minerals

This report, published in January 1997, provides qualitative information on the short-to-medium-term outlook for a range of industrial minerals, including phosphate rock, silica, wollastonite, diamonds, granite, graphite, gypsum, kaolin, magnesia-based refractory raw materials, potash, titanium dioxide, cement, lime, mineral aggregates, and sulphur. Each mineral is categorized under one of the following four groups based on its market environment and prospects: Dynamic Markets, Growing Markets, Stable Markets, or Markets in Transition. The information in this report will be of interest to producers, investors, provincial industrial mineral specialists and other clients.

Mineral Industry Info-Guide

This directory is intended for small- and medium-sized businesses operating in the Canadian minerals and metals industry. It provides Canadian businesses with easy and direct access to brief descriptions of and contact information for the various industry-related services and programs offered by the Government of Canada. This guide and related

information are available on the Internet at **http://www.minerals-minéraux.nrcan.gc.ca**.

Nonferrous Metals Outlook, December 1999

This annual report, published in the last quarter of each year, provides a timely summary of the market conditions and expectations for selected nonferrous metals. An overview of the relative contribution of these commodities to the Canadian economy is presented, along with a commodity-by-commodity summary of Canadian and world highlights and outlooks for consumption, production and prices. This document, as well as previous editions, is available on the Internet at **http://www.nrcan.gc.ca/mms/pubs/nfo-e.htm**.

Overview of Trends in Canadian Mineral Exploration

This annual report contains the latest information on exploration expenditure levels in Canada, a review of current exploration and development activities in the provinces and territories, and commentaries on and analysis of current domestic and international trends affecting the Canadian mineral exploration sector. The data contained in this report (current as of April 1999) and the views expressed by the various authors were assembled and agreed upon by the joint federal/provincial Intergovernmental Working Group on the Mineral Industry (IGWG). This document is available on the Internet at **http://www.nrcan.gc.ca/mms/efab/invest/exploration**.

Stone Industry in Canada, Directory

This publication lists Canadian companies involved in the extraction and transformation of stone to serve the ornamental stone market. It also lists Canadian companies that manufacture products and equipment used by the stone industry and identifies associations and government contacts. However, the Directory does not include companies whose main activity consists of sculpturing stone, lettering monuments, installing masonry products, or fabricating agglomerates. Companies specializing in importation, exportation and distribution, and those offering consultant services, are also excluded.

Sustainable Development and Minerals and Metals: An Issues Paper

The above-noted issues paper was released in September 1995 for the purpose of engaging stakeholders in discussions on how the concept of sustainable development applies to minerals and metals. The issues paper includes an explanation of how sustainable development applies to a "non-renewable" resource, a description of the minerals and metals industry, the role of government in the mining sector, the challenges facing the industry, and the role of science and technology. Comments based on this issues paper helped shape the Government of Canada's new minerals and metals policy. The issues paper is available on the Internet at **http://www.nrcan.gc.ca/mms/sdev/sdmm-e.htm**.

Sustainable Development of Minerals and Metals (UN Monograph)

This monograph was prepared as one of a series to accompany *Building Momentum: Sustainable Development in Canada* (Canada's 1997 submission to the United Nations Commission on Sustainable Development), and for the United Nations General Assembly Special Session in June 1997 on progress made since the Conference on Environment and Development in Rio de Janeiro in 1992. This monograph is available on the Internet at **http://www.nrcan.gc.ca/mms/sdev/sdm-e.htm**.

Terms of Reference: Mineral and Energy Resource Assessment (MERA) of Proposed National Parks in Northern Canada

The MERA Terms of Reference, published by the governments of Canada, the Northwest Territories and the Yukon, provide the reader with information on the background and purposes of MERA, the membership and duties of the Senior MERA Committee and the MERA Working Group, the MERA process's relationship to the *Whitehorse Mining Initiative Leadership Council Accord* and to the National Park Establishment Process, and other general information on funding, products and reports, and public involvement and consultation. This document is available on the Internet at **http://www.nrcan.gc.ca/mms/mera-e.htm**.

Value-Added Challenges in the Mineral Products Industry - Summary of Consultations

This report provides a qualitative summary of the consultations held across Canada with mineral products industry executives from eight government/industry workshops conducted in the fall of 1998. The facilitated workshops were developed as part of a joint initiative by Natural Resources Canada and Industry Canada to review the challenges facing value-added activities by the mineral products industry in Canada. The report will be used as a basis for orienting policy-making, developing targeted strategies, and enhancing the efficient delivery of services by the federal government in the Canadian resource sector. It is available on the Internet at **http://www.nrcan.gc.ca/mms/pubs/mineralprod-e.htm**.

GENERAL

The information in this category is intended mainly for the public and provides more general information on the minerals and metals industry in Canada. To obtain copies contact:

Publications Distribution Office
Minerals and Metals Sector
Natural Resources Canada
580 Booth Street
Ottawa, Ontario, Canada
K1A 0E4

Telephone: (613) 943-0555
Facsimile: (613) 947-1018
E-mail: gkingsle@nrcan.gc.ca

Mineral Fact Sheets

The mineral commodities covered include *Aluminum, Asbestos, Coal, Copper, Gold, Iron Ore, Lead, Nickel, Potash, Salt, Silver, Sulphur* and *Zinc*. There is also a general fact sheet on *Minerals in Canada*. An abridged version of this information is available on the Internet at **http://www.nrcan.gc.ca/mms/school/min&met/english.htm**.

Posters

A series of four posters (60 cm x 90 cm) depicting the mining industry is available. The posters by title are: *Surface Mine, Underground Mine, The Concentrator,* and *Smelting and Refining.*

Principal Mineral Areas of Canada – Map 900A – 1999 Edition

This map (at a scale of 1:6 000 000) is issued annually in December and is approximately 86 cm by 140 cm. The 1999 edition pinpoints 235 significant metallic, nonmetallic and industrial mineral mines, as well as some 246 oil and gas fields, in a geological setting. The map also depicts existing and proposed oil and gas pipelines. An index provides the name of the owner company, name of the mine, mine location, and principal minerals and metals for each mine and for each oil and gas field. Seven inset mineral maps of the country show the locations of nonferrous smelters and refineries,

pig iron and ferro-alloy plants, and producing mines by major commodity groups including uranium and precious metals, base metals, ferrous metals and industrial minerals. In addition, a tectonic map shows the geological provinces of Canada. Two charts and one table provide mineral production statistics by commodity group, by year, as well as by province and territory, for fuels and for metallic, nonmetallic and industrial minerals.

MINERAL TECHNOLOGY AND EXPLOSIVES

Mining and Mineral Sciences Laboratories (MMSL) Annual Report

The MMSL Annual Report provides summaries of highlights and work done during the period 1998-99. MMSL is part of the Canada Centre for Mineral and Energy Technology (CANMET). MMSL laboratories are located in Ottawa, Ontario; Sudbury, Ontario; and Val-d'Or, Quebec.

To order copies contact:

Office of Business and Administration Services
MMSL - CANMET
Minerals and Metals Sector
Natural Resources Canada
555 Booth Street
Ottawa, Ontario, Canada
K1A 0G1

Telephone: (613) 992-7392
Facsimile: (613) 947-0983
E-mail: jbourque@nrcan.gc.ca

NEWSLETTERS

BIOMINET Newsletter

BIOMINET is a network of companies, research organizations and associated agencies interested in applications of biological systems in all aspects of the recovery and processing of minerals and fossil fuel resources. The *BIOMINET Newsletter* covers news items about CANMET biotech-nology work, contracts, meetings and other articles of interest.

To order copies contact:

Dr. David Koren
MMSL - CANMET
Minerals and Metals Sector
Natural Resources Canada
555 Booth Street
Ottawa, Ontario, Canada
K1A 0G1

Telephone: (613) 992-7286
Facsimile: (613) 996-9673
E-mail: dkoren@nrcan.gc.ca

BIOMINET also has a site on the Internet at **http://www.nrcan.gc.ca/mets/biominet**.

MEND Newsletter

The Mine Environment Neutral Drainage (MEND) Program was established in 1989 to initiate and coordinate Canadian research and development of new technologies to reduce the environmental impact and financial liabilities of acidic drainage from waste rock piles, tailings sites and mine openings. The *MEND Newsletter* provides news about relevant R&D developments, studies and reports, as well as upcoming events.

To order copies of the newsletter or other MEND technical reports contact:

MEND Secretariat
MMSL - CANMET
Minerals and Metals Sector
Natural Resources Canada
555 Booth Street, Room 328
Ottawa, Ontario, Canada
K1A 0G1

Telephone: (613) 995-4681
Facsimile: (613) 947-5284
E-mail: lmadaire@nrcan.gc.ca

MEND also has a site on the Internet at **http://www.nrcan.gc.ca/mets/mend**.

Mining and Mineral Sciences Laboratories (MMSL) Newsletter

The MMSL Newsletter provides news about relevant R&D developments, studies and reports, as well as upcoming events or changes within the MMSL organization.

To order copies contact:

Office of Business and Administration Services
MMSL - CANMET
Minerals and Metals Sector
Natural Resources Canada
555 Booth Street
Ottawa, Ontario, Canada
K1A 0G1

Telephone: (613) 992-7392
Facsimile: (613) 947-0983
E-mail: jbourque@nrcan.gc.ca

"R-Net" Recycling Technology Newsletter

R-Net is a newsletter designed to provide up-to-date information about new technology in the field of recycling. Each issue emphasizes a specific topic, such as automotive recycling, construction and demolition waste, mining and metallurgical waste, post-consumer products, municipal solid waste, electronic and metal scrap, and industrial waste. Information on waste management policies, associations and awards, as well as on upcoming events, is also presented. To order copies contact:

Dr. Elizabeth Giziewicz
MMSL - CANMET
Minerals and Metals Sector
Natural Resources Canada
555 Booth Street
Ottawa, Ontario, Canada
K1A 0G1

Telephone: (613) 996-1581
Facsimile: (613) 996-9041
E-mail: giziewic@nrcan.gc.ca

CATALOGUES

Catalogue of Certified Reference Materials

This catalogue contains descriptions of approximately 100 materials such as compositionally characterized powdered Canadian ores, mineral processing products, and environmental, geochemical and radioactive materials. All materials listed are prepared and certified by CANMET's Canadian Certified Reference Materials Project (CCRMP).

To obtain copies contact:

CCRMP Coordinator
MMSL - CANMET
Minerals and Metals Sector
Natural Resources Canada
555 Booth Street
Ottawa, Ontario, Canada
K1A 0G1

Telephone: (613) 995-4738
Facsimile: (613) 943-0573
E-mail: cemberly@nrcan.gc.ca

CCRMP also has a site on the Internet at **http://www.nrcan.gc.ca/mets/ccrmp**.

TECHNICAL REPORTS

The Mineral Technology Branch publishes a wide range of technical reports. A few titles produced by the Mining and Mineral Sciences Laboratories (MMSL) are listed below. Unless indicated otherwise, orders or inquiries should be directed to:

Lynne Blais
MMSL - CANMET
Minerals and Metals Sector
Natural Resources Canada
555 Booth Street
Ottawa, Ontario, Canada
K1A 0G1

Telephone: (613) 995-0908
Facsimile: (613) 995-3588
E-mail: lblais@nrcan.gc.ca

An Overview of the Metals Recycling Industry in Canada

This report provides details of the project *An Overview of the Metals Recycling Industry in Canada*. The project's main objective was to identify research and development programs focusing on technologies to promote the use and recyclability of metal-bearing scrap, by-products and waste in Canada.

MSL Division Report 93-68 (R)

Price: $50.00

Canadian Rockburst Research Program, Phase II

This report is a description of results of CANMET's contribution to Phase II of the Canadian Rockburst Research Program. It provides: detailed discussion of hardware and software developments related to the CANMET seismic/microseismic systems; concepts and a glossary of terms used in mining-related seismic technology; and a microseismic event source location evaluation.

Catalogue No.: SP98-017E

Price: $35.00

Estimating Preproduction and Operating Costs of Small Underground Deposits

This manual identifies the cost items and a basis for estimating the costs associated with the development and operation of small underground deposits of ore. The manual is not intended to replace professional feasibility studies, but it will help junior mining companies, prospectors and developers carry out preliminary assessments of promising finds.

Catalogue No.: M38-15/86-11E

Price: $35.00

Evaluation of the Potential for Biotechnology in the Canadian Mining Industry

This report compiles biotechnology processes in production and at various stages of development classified by commodity. Summaries are provided for base metals and uranium leaching; gold and silver processes; environmental applications; fossil fuels; and industrial minerals. For each sector, a summary provides the status of the technologies indicating whether the technology is commercial, near commercial, demonstrated at pilot scale, demonstrated at laboratory scale, or at the conceptual stage.

CANMET Report 95-029 (R)

Price: $50.00

Geotechnical Properties of Rock

One of a series of CANMET reports, this one documents a database of the physical properties of rock types found in Canada. The database includes intact and residual strengths as well as other geotechnical properties of the rocks listed.

Catalogue No.: SP95-1E

Price: $35.00

Index of Mining Technology Projects 1996

First issued in 1984 and updated annually, except for a two-year hiatus from 1991-93, this index is unique because it is the only comprehensive source of information on the mining research and development projects currently being carried out in Canada by mining companies, universities, federal and provincial agencies, and private sector organizations. The important aspect of the index is that the majority of the projects listed are not documented in technical magazines, journals and proceedings, nor elsewhere in technical literature. Therefore, it provides technical

reference information that complements published R&D work.

Pit Slope Manual

Although first compiled and issued in the 1970s, this manual, consisting of ten chapters and supported by six sets of computer programs, is still viewed as a landmark in the documentation of geo-mechanics related to open-pit operations. Over the years CANMET has updated some of the chapters and reprogrammed the software to work on PCs.

Please inquire with MMSL - CANMET (tel. (613) 995-0908) for a listing of chapter and supplement titles, catalogue numbers and prices.

48 **Rockburst Handbook For Ontario Hard Rock Mines**

Rockbursts, or sudden explosive rock fractures, occur when rock has been loaded beyond the failure point. In engineering terms, the stress in the rock exceeds its own strength. This handbook, completed in 1992, documents the R&D work that was undertaken between 1984 and 1990 under the Canada-Ontario-Industry Rockburst Project. Written by Dr. David Hedley, CANMET's project leader, it is considered to be as complete a work as has been written on the phenomena and its control technologies, and should be invaluable to the industry and others as a design manual.

Catalogue No.: M38-15/92-1E
Price: $100.00

Please note that the Materials Technology Laboratory (MTL) also produces various technical reports. Orders for or inquiries about MTL's products should be directed to:

Alan Bowles
Manager, Business Communications
MTL - CANMET
Minerals and Metals Sector
Natural Resources Canada
568 Booth Street
Ottawa, Ontario, Canada
K1A 0G1

Tel.: (613) 995-8814, Fax: (613) 992-8735
E-mail: abowles@nrcan.gc.ca

EXPLOSIVES

The following publications can be obtained by contacting: 49

Explosives Regulatory Division
Mineral Technology Branch - CANMET
Minerals and Metals Sector
Natural Resources Canada
580 Booth Street, 15th Floor
Ottawa, Ontario, Canada
K1A 0E4

Telephone: (613) 995-7344
Facsimile: (613) 995-0480
E-mail: hmaxwell@nrcan.gc.ca

Blasting Explosives and Detonators: Storage, Possession, Transportation, Destruction and Sale

This booklet reviews the basic principles of the storage and handling of blasting explosives, detonators (blasting caps) and related explosive accessories. It also summarizes some of the legal aspects of their storage and sale.

Control of Model Rocketry in Canada

This booklet is a guide to parents, teachers and other adults who supervise young people involved in the hobby of model rocketry. It contains safety rules and procedures applicable to the launching of model rockets in Canada and to the static testing of model rocket engines. It can also be used by manufacturers, importers, wholesalers and retailers as a guide to the legal requirements for the manufacture, sale, purchase, possession, storage, transportation, importation and labelling of model rocket engines containing explosives and model kits containing such engines.

Explosives Act and Regulations

An Act with respect to the manufacture, testing, sale, storage and importation of explosives in Canada.

Explosives and Pyrotechnics Bulletin

This bulletin is designed to communicate with the explosives and pyrotechnics community in Canada. The Explosives Regulatory Division and the Canadian Explosives Research Laboratory of Natural Resources Canada hope to reach not only the manufacturers of explosives and pyrotechnics, but also small distributors, transport companies and users. Most articles in the bulletin will focus on safety but, from time to time, some articles will deal with other subjects of interest.

Fireworks Manual (for Class 7.2.2 Explosives)

This manual is a guide to the responsible use of fireworks to minimize the risk of fire and injury. It can also be useful to persons responsible for the enforcement of provincial laws or municipal by-laws.

List of Authorized Explosives (March 31, 1999)

- *Part 1, Blasting and Related Explosives and Accessories* (March 31, 1999)
- *Part 2, Sporting Ammunition and Industrial Cartridges,* and *Propellants and Percussion Caps (Primers)* (March 31, 1999)
- *Part 3, Fireworks and Pyrotechnic Articles* (March 31, 1999)

Magazine Standards for Blasting Explosives and Detonators

In cooperation with explosives manufacturers and distributors, provincial mines departments, and other departments and public agencies, and with the assistance of the Royal Canadian Mounted Police, new construction standards for magazines have been developed. These standards, first published in 1972 and used since 1974 as the basis for the licensing of magazines, have proven to be an invaluable aid in maintaining physical security over blasting explosives and detonators. This edition includes a completely revised list of approved padlocks as an appendix.

New Canadian Quantity-Distance Manual

This manual is the primary reference for siting explosives facilities, serving as a necessary guide for factory operators and an accurate source of information for anyone interested in the field.

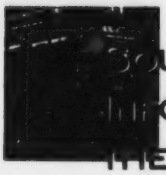
The principles are adapted from those developed by NATO. In some cases the new principles may be more stringent than the old tables. However, all existing licences have been "grandfathered," i.e., exempted from the new requirements. While there is a charge for the complete manual, some segments of the explosives community (e.g., blasting, consumer fireworks) will continue to get appropriate extracts and guidance free of charge.

Price: $95.00

Pyrotechnic Special Effects Manual

The Pyrotechnic Special Effects Manual has been developed by ERD to promote safety and legal awareness related to the use of pyrotechnics in the production of special effects in venues such as stages, theatres, and film and video production sets. The manual is used as the basis for the training of pyrotechnicians – training that is a prerequisite for certification as a pyrotechnician in Canada. It also provides guidelines for members of agencies that are associated with pyrotechnics, such as fire departments, film commissioners, police forces, and provincial occupational health and safety personnel.

Price: $25.00



SOURCES OF INFORMATION ON THE INTERNET

Along with many other federal government departments, Natural Resources Canada (NRCan) has made great strides in embracing Internet technology. NRCan's home page has direct links to other sectors of the Department, reports and statistical information, directories of departmental specialists and services, and other government departments and sites of interest to our clients.

We would be very pleased to have you visit us at:

NRCan Home Page

http://www.nrcan.gc.ca

Minerals and Metals Sector Home Page

http://www.nrcan.gc.ca/mms/ms-e.htm

CANMET Laboratories

Canadian Explosives Research Laboratory home page: http://www.nrcan.gc.ca/mms/explosif/cerldireng.htm

Materials Technology Laboratory home page: http://www.nrcan.gc.ca/mms/canmet-mtb/mtl

Mining and Mineral Sciences Laboratories home page: http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl.htm

List of Other Sources of Information on Canada's Landmass and Mineral Resources from the Minerals and Metals Sector

Business Climate for Mineral Investment:
http://mmsd1.mms.nrcan.gc.ca/business

Canadian Minerals Yearbook:
http://www.nrcan.gc.ca/mms/cmy/index_e.html

Canadian Mining Facts: http://www.nrcan.gc.ca/mms/efab/mmsd/facts/default.html

Explosives Information:
http://www.nrcan.gc.ca/mms/explosif

Information for Exporters:
http://www.nrcan.gc.ca/mms/export-e.htm

Mapping Federal-Provincial Mining Knowledge:
http://mmsd1.mms.nrcan.gc.ca/maps

Mining and Minerals in Canada:
http://www.nrcan.gc.ca/mms/prov-e.htm

Mineral Commodities Information:
http://www.nrcan.gc.ca/mms/cmy/CMY_E3.htm

Mining Taxation World:
http://www.nrcan.gc.ca/mms/efab/tmrd

Mining Technology:
http://www.nrcan.gc.ca/mms/sandt-e.htm

Statistics on Canada's Mineral Industry:
http://www.nrcan.gc.ca/mms/efab/mmsd

Statistics on Canada's Natural Resources:
http://www.nrcan.gc.ca/statistics